

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling the order of datagrams, the datagrams being processed by at least one processing engine, said at least one processing engine having at least one input port and at least one output port, the method comprises the steps of:
 - (a) each processor in the at least one processing engine, once it becomes available, taking a ticket from a ticket dispenser, the ticket having a value associated therewith;
 - (b) waiting on an input buffer of the input port until the processor is given permission to continue according to the value of the ticket taken in step (a);
 - (c) reading a next datagram or group of datagrams once the processor is given permission to continue;
 - (d) signaling the input buffer for next ticket value;
 - (e) processing the read datagram by the processor;
 - (f) waiting on an output buffer of the output port until the processor is given permission to continue according to the value of the ticket taken in step (a);
 - (g) writing the processed datagram once the processor is given permission to continue;
 - (h) signaling the output buffer for next ticket value; and
 - (g) repeating steps (a)-(h) for each ticket value wherein each datagram or each group of

~~datagrams has a ticket associated therewith by a ticket dispenser, and wherein processors in the at least one processing engine, once they become available, take the next ticket from the ticket dispenser and use it to control the order of the datagram or group of datagrams at the at least one input port of the processing engine and at the at least one output port of the processing engine.~~

2. (Original) A method according to claim 1, wherein the order of the datagrams or group of datagrams at the at least one input port corresponds to the order of the datagrams at the at least one output port.

3. (Original) A method according to claim 1, wherein the tickets comprise numerical values.

4. (Original) A method according to claim 1, wherein the ticket comprises a semaphore with data associated therewith.

5. (Currently Amended) A processing engine for processing datagrams in a predetermined order, the processing engine comprising:

at least one input port,

at least one output port and

a plurality of processing elements, each processing element comprising

an input port connected to the at least one input port of the processing engine,

an output port connected to the at least one output port of the processing engine and arithmetic and logic means, and

a ticket dispenser adapted to associate a ticket with each incoming datagram, wherein the processing elements, ~~once the processing elements become~~ upon becoming available, ~~taking the~~ take a next ticket from the ticket dispenser[[:]] ~~the an~~ order of processing datagrams being controlled at the at least one input port of the processing engine and at the at least one output port of the processing engine in dependence on a said the ticket associated with the datagram or a group of the datagrams and the reading and writing of the read and processed datagram takes place upon the processor being given permission to continue.

6. (Original) A processing engine according to claim 5, wherein the processing element comprises an element of a multi threaded array processing engine.
7. (Original) A processing engine according to claim 5, wherein the processing element can leave or enter the predetermined order.
8. (Currently Amended) A processing system comprising a plurality of processing engines for processing datagrams in a predetermined order, each processing engine comprising
at least one input port,
at least one output port and

a plurality of processing elements, each processing element comprising

an input port connected to the at least one input port of the processing engine,

an output port connected to the at least one output port of the processing engine

and arithmetic and logic means, and

a ticket dispenser adapted to associate a ticket with each incoming datagram,

wherein the processing elements, ~~once the processing elements become~~ upon becoming available, ~~taking the~~ take a next ticket from the ticket dispenser[[:]] ~~the~~ an order of processing datagrams being controlled at the at least one input port of the processing engine and at the at least one output port of the processing engine in dependence on a ~~said~~ the ticket associated with the datagram or a group of the datagrams and the reading and writing of the read and processed datagram takes place upon the processor being given permission to continue.

9. (Original) A processing system according to claim 8, wherein datagrams are processed in a round robin manner.

10. Canceled.

11. (Previously Presented) A processing system according to claim 9, wherein the tickets are issued on a first come first served basis.

12. (Previously Presented) A processing system according to claim 8, further comprising a counter for maintaining the value of the current ticket.
13. (Original) A processing system according to claim 12, wherein the counter comprises storage means for storing a numerical value.
14. (Original) A processing system according to claim 13, wherein once a processing element is allocated a datagram or group of datagrams for processing, the counter is incremented or decremented.
15. (Currently Amended) The method of claim 1, wherein a number of tickets is ~~at least equal to~~ greater than a total number of the processors.
16. (New) The method of claim 1, wherein the ticket represents an arrival time of the packet.
17. (New) The method of claim 1, wherein the processor drops selected datagrams from being written to the output buffer.
18. (New) The method of claim 1, wherein the processor enters or leaves a processing sequence.